September 14, 1951.

Dr. Freeman A. Weiss,
Curator, American Type Culture Collection,
2029 M Street, N.W.,
Washington, D.C.

Dear Dr. Weiss:

You may recall our discussion of a new method developed in this laboratory which appears to be quite promising for the preservation of microbial cultures

The method is designed to eliminate the difficulties and uncertainties attached to the well-documented technique of drying cultures in vacuo from the frozen state. Glass vials or tubes about 10 cm long and 7 cm diam. are filled with .5 - 1 gm. of anhydrous silica gel, 6-16 mesh (secured from the Davison Co. or other mfrs.) The tubes are pluggedwwith cotton and baked at 170 C. for 2-3 hours. This not only sterilizes the gel but also drives off any residual moisture. The silica tubes are kept in a vacuum desiccator until used. We have made up rather dense bacterial suspensions by scraping the growth from an agar slant and suspending it in about .25 ml 2% peptone, althou cultures as grown in peptone or Pennassay broth have been satisfactory also. A volume of suspension corresponding to less than 10% of the weight of silica in each tube is then added directly to the silica with a Pasteur pipette, The tubes are then sealed off directly (without evacuation). To restore the cultures, we have simply broken the sealed vial with a file and hot wire, and poured the granules of silica directly into broth. A considerable amount of material also remains adherent to the walls of the tube, and for quantitati recovery experiments, these should be washed with broth from a pipette.

The advantages afethis technique include the obviation of the many time-consuming steps of freeze-drying, and the uncertainties of complete removal of moisture; the ease of scheduling the preservation of any number of culture whether one or many; the greater reliability and mechanical strength of vials sealed in air; the greater ease of handling coherent granules; and the much lower level of training required to handle this technique. The one factor we have not yet verified is, of course, all important: how long the preserved cultures will keep, and what range of microbes can be handled this way. In principle, and in experiments so far involving only a short term, with E, coli the procedure has given very satisfactory results. Even if the procedure shoul prove to be unreliable for long-term preservation, I plan to use it as a very convenient method of shipping cultures. I enclose a sample of E. coli (about 2 weeks old). I would be most happy to keep in touch with you concerning any major developments or extended applications.

Sincerely,